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EXAMINER				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/596,557

Applicant(s)

LAPINTE ET AL.

Examiner

John Mabry, PhD

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CI/CC)
Paper No(s)/Mail Date 6/16/06 & 6/23/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Examiner's Response

Applicant's response on December 27, 2007 filed in response to the Election/Restriction dated December 17, 2007 has been received and duly noted. The Examiner acknowledges Applicants' election of Group I without traverse.

Thus, the restriction requirement is deemed proper and **FINAL**.

In view of this response, the status of the rejections/objections of record is as follows:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "derivative" in corresponding claims is a relative term which renders the claim indefinite. The term "derivative" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in

the art would not be reasonably apprised of the scope of the invention. What does Applicant intend for this term to mean? Where is there support in Specification that defines this term? This term has no limitations, thus encompassing all structural possibilities.

The term "molecular condensation entity" in corresponding claims is a relative term which renders the claim indefinite. The term "molecular condensation entity" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What does Applicant intend for this term to mean? Where is there support in Specification that defines this term? This term has no limitations, thus encompassing all structural possibilities.

The terms "grafting function", "coordination function" and "function" in corresponding claims is a relative term which renders the claim indefinite. The terms "grafting function", "coordination function" and "function" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What does Applicant intend for this term to mean? Examiner respectfully requests that the Applicant to indicate the exact definition of said term in the Specification.

Regarding claim 3, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Regarding claim 3, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under U.S.C. 112, first paragraph, as containing subject matter which was not described in the Specification in such a way as to reasonably convey one of ordinary skill in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The expression **"reactive oxygen-detecting and/or -absorbing compound"** does not convey to one of ordinary skill in the art that Applicants were in possession of the claimed subject matter. The functional language recited without any examples in the Specification. The phrase **"reactive oxygen-detecting and/or -absorbing compound"** is unduly functional.

Names, structures, and chemical formulas precisely define organic molecules.

Attempting to define structure by function is not proper when the structures can be clearly expressed in terms that are more precise. It is not sufficient to define a chemical structure solely by its principal physical property. Applicants are attempting to define the structure of a claimed molecule by a single property. The U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences held *in Ex parte Pulvari* 157 USPQ 169 that "a material defined, as here, solely in terms of what it can do, of a property thereof or of the scientific principle that underlies that property ... does [not] particularly point out, as required by the 35 U.S.C. 112, appellant's disclosed invention".

Regardless of the functional language used in claims, the claims are compound claims and will be examined as such.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Holloway (EP 0,283,206 A2 – already of record).

Holloway discloses an oxygen-detecting molecular complex which is comprised of a metal derivative and ligand which changes color in accordance with the oxidation of the metal which is connected to a solid surface support by means of a covalent bond (see entire disclosure, more specifically page 4, lines 5-17 and lines 56-58).

The metal derivative and ligand is a 1,10-phenanthrolyl-bis(4,7-diphenyl-1,10-phenanthroline-5-yl) silanetriol triacetate ruthenium complex, which is a ligand that comprises two conjugated imine functional groups and in which two atoms of nitrogen (one of which belongs to a pyridine core) are separated by two atoms (see entire disclosure, more specifically page 5 lines 14-34).

Claims 1, 2, 3 and 9 rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Bentsen (US 2003/0099574 A1 - already of record).

Bentsen discloses a sensor system for determining the concentration of oxygen. The sensing element comprising of a solid polymeric matrix material that is covalently bonded which changes color in accordance with the oxidation of the metal (see page 2, paragraph 13, page 3, paragraphs 21-29).

The metal derivative and ligand is a bis(4,7-diphenyl-1,10-phenanthroline-10)[4-[4-[3-(methyldi-2-propenylsilyl)propyl]phenyl]-7-phenyl-1,10-phenanthroline 3-

(trimethylsilyl)-1-propanesulfonic acid Ruthenium complex, which is a ligand that comprises two conjugated imine functional groups and in which two atoms of nitrogen (one of which belongs to a pyridine core) are separated by two atoms (see entire disclosure, more specifically Fig. 1b and 1c).

Claim Rejections - 35 USC § 102/103

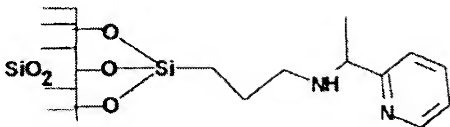
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 9 and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lagasi et al (J. Molecular Cat. A: Chemical 2002, 182-183, 61-72 – published May 31, 2002).

Lagasi et al disclose the ligand below attached to a SiO₂ solid support system that complex to metals, more specifically palladium (see entire disclosure, more specifically page 63, example SILPY (a)).



Lagasi's reference discloses a molecular complex which comprises a metal derivative and ligand which is connected to a surface of solid support by means of a covalent bond. The ligand comprises of a heteroaromatic chain which comprises two conjugated imine functional groups (which at least two atoms of nitrogen - one belonging to a pyridine core separated by two carbons. The ligand is also a condensation product of a pyridinyl ketone starting reagent.

Lagasi differs from instant application in that a) a ketone was used in the condensation reaction and b) the imine was reduced (hydrogenated) prior to metal complexation.

The reference shows the compound, but is silent on Lagasi's molecular complex ability to be oxidized by oxygen. The compound in said reference will inherently change color as the molecular complex is exposed to oxygen as claimed in the instant application. Lagasi's disclosed molecular complex would perform the same as instant application and inherently exist.

MPEP 2112 states:

"Something which is old does not become patentable upon the discovery of a new property

"When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In this case, the "unknown property" is the Lagasi's molecular complex ability to be oxidized by oxygen. This is unknown because the reference is silent on this property. MPEP 2112 goes on to state:

"A rejection under 35 U.S.C. 102/103 can be made when the prior art product seems to be identical except that the prior art is silent as to an inherent characteristic

Where applicant claims a composition of matter in terms of a function, property or characteristic and the composition of matter of the prior art is the same as that of the claim but and/or Applicant has not clearly distinguished the identity of the composition of matter in the prior art from the composition of matter instantly claimed, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection."

In another example, certain claims of *Ex parte Raychem Corp.* 25 USPQ2d 1265 required a linearity ratio of less than 1.2. The decision notes that neither reference discloses any values of the linearity ratio. The PTO presented no reasoning as to what the ratio would be expected to be in the references. The Decision states: "However, this does not end the inquiry since, where the Patent and Trademark Office is not equipped

to perform the needed testing, it is reasonable to shift the burden of proof to Raychem to establish that (1) the argued difference exists....”

And indeed, there have been a number of cases in which applicants have pointed to silence of the prior art with regard to this or that property: *In re Pearson*, 181 USPQ 641; *In re Zierden* 162 USPQ 102; *In re Lemin*, 140 USPQ 273; *Titanium Metals Corporation of America v. Banner*, 227 USPQ 773; *In re Benner*, 82 USPQ 49, *Zenith Laboratories Inc. v. Bristol-Myers Squibb Co.* 30 USPQ2d 1285, 1288. Going further, if silence about properties of prior art compounds could be relied on, then one could not reject over references with no utility (see *In re Schoenwald*, 22 USPQ2d 1671), since applicants could always insert the utility into the claim as a property.

It is well settled that the PTO can require an applicant to establish that a prior art product does not necessarily possess the characteristics of the claimed product when the prior art and claimed products are identical or substantially identical. An applicant's burden under these circumstances was described in *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-434 (CCPA 1977) as follows:

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. . . . Whether the rejection is based on 'inherency' under 35 U.S.C. § 102, or 'prima facie obviousness' under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products (footnote omitted).

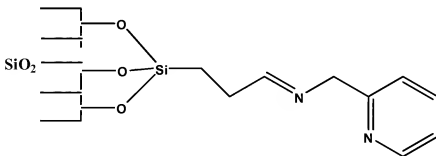
Overcoming the rejection is very straightforward. One simply replicates the prior

art procedure. If the particular molecular complex (Lagasi's) ability to be oxidized by oxygen does not appear at all in the product, or if on repetition, it sometimes does not appear in the product, then the rejection is overcome. Evidence should be presented in the declaration form.

The Examiner requests a comparison of characteristic data between the compound found in Lagasi's reference and the claimed products of instant application in order to determine differences and overcome this rejection.

Claims 1-5 and 9-11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Clark et al (Green Chemistry 2000, 2, 53-56 - abstract).

Clark et al disclose the ligand below attached to a SiO_2 solid support system that complex to metals, more specifically palladium (see entire disclosure).



Clark's reference discloses a molecular complex which comprises a metal

derivative and ligand which is connected to a surface of solid support by means of a covalent bond. The ligand comprises of a heteroaromatic chain which comprises two conjugated imine functional groups (which at least two atoms of nitrogen - one belonging to a pyridine core separated by two carbons. The ligand is also a condensation product of a pyridinyl carboxyaldehyde starting reagent.

The reference shows the compound, but is silent on Clark's molecular complex ability to be oxidized by oxygen. The compound in said reference will inherently change color as the molecular complex is exposed to oxygen as claimed in the instant application. Clark's disclosed molecular complex would perform the same as instant application and inherently exist.

MPEP 2112 states:

"Something which is old does not become patentable upon the discovery of a new property

"When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In this case, the "unknown property" is the Clark's molecular complex ability to be oxidized by oxygen. This is unknown because the reference is silent on this property.

MPEP 2112 goes on to state:

"A rejection under 35 U.S.C. 102/103 can be made when the prior art product seems to be identical except that the prior art is silent as to an inherent characteristic

Where applicant claims a composition of matter in terms of a function, property or characteristic and the composition of matter of the prior art is the same as that of the claim but and/or Applicant has not clearly distinguished the identity of the composition of matter in the prior art from the composition of matter instantly claimed, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection."

In another example, certain claims of *Ex parte Raychem Corp.* 25 USPQ2d 1265 required a linearity ratio of less than 1.2. The decision notes that neither reference discloses any values of the linearity ratio. The PTO presented no reasoning as to what the ratio would be expected to be in the references. The Decision states: "However, this does not end the inquiry since, where the Patent and Trademark Office is not equipped to perform the needed testing, it is reasonable to shift the burden of proof to Raychem to establish that (1) the argued difference exists...."

And indeed, there have been a number of cases in which applicants have pointed to silence of the prior art with regard to this or that property: *In re Pearson*, 181 USPQ 641; *In re Zierden* 162 USPQ 102; *In re Lemin*, 140 USPQ 273; *Titanium Metals Corporation of America v. Banner*, 227 USPQ 773; *In re Benner*, 82 USPQ 49, *Zenith Laboratories Inc. v. Bristol-Myers Squibb Co.* 30 USPQ2d 1285, 1288. Going further, if silence about properties of prior art compounds could be relied on, then one could not reject over references with no utility (see *In re Schoenwald*, 22 USPQ2d 1671), since

applicants could always insert the utility into the claim as a property.

It is well settled that the PTO can require an applicant to establish that a prior art product does not necessarily possess the characteristics of the claimed product when the prior art and claimed products are identical or substantially identical. An applicant's burden under these circumstances was described in *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-434 (CCPA 1977) as follows:

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. . . . Whether the rejection is based on 'inherency' under 35 U.S.C. § 102, or 'prima facie obviousness' under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products (footnote omitted).

Overcoming the rejection is very straightforward. One simply replicates the prior art procedure. If the particular molecular complex (Clark's) ability to be oxidized by oxygen does not appear at all in the product, or if on repetition, it sometimes does not appear in the product, then the rejection is overcome. Evidence should be presented in the declaration form.

The Examiner requests a comparison of characteristic data between the compound found in Clark's reference and the claimed products of instant application in order to determine differences and overcome this rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holloway (EP 0,283,206 A2) in view of Clark et al (Green Chemistry 2000, 2, 53-56).

Scope & Content of Prior Art MPEP 2141.01

Holloway discloses an oxygen-detecting molecular complex which is comprised of a metal derivative and ligand which changes color in accordance with the reduction of the metal which is connected to a solid surface support by means of a covalent bond

(see entire disclosure, more specifically page 4, lines 5-17 and lines 56-58). The metal derivative and ligand is a 1,10-phenanthrolyl-bis (4,7-diphenyl-1,10-phenanthrolin-5-yl) silanetriol triacetate ruthenium complex, which is a ligand that comprises two conjugated imine functional groups and in which two atoms of nitrogen (one of which belongs to a pyridine core) are separated by two atoms (see entire disclosure, more specifically page 5 lines 14-34).

Clark discloses grafted silica-bound N-[(2-pyridinyl)methylene]-1-propanamine compounds which complex metals (see abstract).

Differences between Prior Art & the Claims MPEP 2141.02

Holloway differs from the instant invention in that Holloway does not disclose the compound N-(2-pyridinylmethylene)-3-(trimethoxysilyl)-1-propanamine.

Clark discloses grafted silica-bound N-[(2-pyridinyl)methylene]-1-propanamine compounds which complex metals (see abstract).

Prima Facie Obviousness, Rational & Motivation MPEP 2142-2413

It would be obvious to one of ordinary skill in the art would be motivated to combine the teachings of Holloway with the silica grafted compounds of Clark in order to make reactive oxygen-detecting and/or -absorbing compounds as claimed by Applicant. Holloway teaches the ligands comprised of conjugated imine functional groups in which at least two atoms of nitrogen (one of which belongs to a pyridine core) that are separated by two carbons complexes to metals, more specifically diimine iron

chelates (see page 3, lines 22-35). Clark discloses grafted silica-bound N-[(2-pyridinyl)methylene]-1-propanamine compounds which complex metals (see abstract). One of ordinary skill in the art would be motivated to replace (substitute/exchange) the compounds as described by Clark and incorporate them into the teachings of Holloway to make molecular complex that is reactive to oxygen thus a oxygen-detecting and/or – absorbing compound.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Mabry, PhD whose telephone number is (571) 270-1967. The examiner can normally be reached on M-F from 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres, can be reached on (571) 272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Rita J. Desai/
Primary Examiner, Art Unit 1625

/John Mabry, PhD/
Examiner, Art Unit 1625